Form C-104
Rev. 10/07

CONSTRUCTION VALUE ENGINEERING CHANGE PROPOSAL
MISSOURI DEPARTMENT OF TRANSPORTATION

Date 6/5/08

Contract ID 071221-701 Job No. J7P0769 & J7O2146

County Barry Route 60 Original Bid Cost $7,236,141.72

Contractor APAC-Missouri, Inc. By David Wilkins

Designed By APAC-Missouri, Inc. Phone 417-868-6700

VECP 08-68

1. Description of existing requirements and proposed change(s). Advantages/Disadvantages

The original design on the above referenced project calls for crown to be placed in the roadway from approximate Sta. 7+50 to 27+50 in both the EBL and WBL. The crown in the roadway is to allow for traffic to transition onto the bridges which also have crown. By placing crown in the roadway and draining water to the Type A Barrier, drainage structures were designed through this area to remove water from the median. We are proposing to build the new widening (WBL) with 2% cross slope draining away from the Type A barrier through the above referenced stations. We would transition from a 2% cross slope back to crown to match the new bridge. The plans currently call for a 2% cross slope change in 150', so essentially, 150' before the bridges we would have to transition both lanes back to crown. We would like to work with MoDOT to establish the exact transition points. The WBL is new pavement, so it could be graded to allow for the slope changes. The existing EBL would have to be wedged with asphalt to shift crown. We are proposing to wedge with BP-3 (at the contract unit price), which is already set up in the contract for wedging. No quantity was added for wedging the existing road to move crown since the quantity is not able to be determined with the current information. Quantity could be determined after transitions lengths and existing slope is established.

By building the lanes in the above proposal, we would eliminate the need for drainage structures 1-1C through 1-10C and 2-4C through 2-6C(See attached 2B sheets for deleted quantities). Eliminating drainage structures 2-4C through 2-6C will result in an under-run of 175 SY of pavement since the existing roadway where the structures are set to be placed in will not be disturbed. Please note that this 175 SY of pavement was added through an addendum, yet the square yards of base rock was not increased. Therefore, the quantity of base rock was not reduced since it was never added.

Note: No engineering fees were included in the above proposal. We are requesting that if any engineering is required, MoDOT perform the engineering at no cost to APAC-Missouri, Inc or this proposal.

The first advantage is there will be less drop inlets and pipe to maintain for MoDOT maintenance.

The second advantage is the change in cross slope will serve the same purpose as the drop inlets at a lower cost to the taxpayers.

APAC-Missouri, Inc. does not foresee any disadvantages to the above proposal.

The estimated net savings is $50,588.95. See attached quantity summary and detailed 2B sheets. One new item will have to be created to buy back Type C DI's that have already been made.

2. **Estimate of reduction in construction costs.**
3. **Prediction of any effects the proposed change(s) will have on other department costs, such as maintenance and operations.**

   APAC-Missouri, Inc. foresees no additional costs for MODOT.

4. **Anticipated date for submittal of detailed change(s) of items required by Section 104.6 of the Specifications.**

   Detailed breakdown is attached
   (date)

5. **Deadline for issuing a change order to obtain maximum cost reduction, noting the effect of contract completion time or delivery schedule.**

   June 23, 2008 (date) — **No change to completion date or schedule.** (effect)

6. **Dates of any previous or concurrent submission of the same proposal.**

   N/A
   (date and/or dates)

Additional Comments:

*** Portion Below This Line To Be Filled Out by MoDOT ***

Comments: I think the idea has benefits to constructability, but only on the DI's 6/w Sta's 25+00 and 27+50. I would support underrunning these DI's and modifying cross slope in WBL to drain across pavement (North). Field conditions and transitions will have to be reviewed prior to final approval / dollars calculation. Additionally, this VE as submitted saves $50,589. However, this number does not include dollars for wedging. The wedging would substantially reduce the savings. I don't think the elimination of the storm sewer is an advantage to MoDOT or Rte 60, because there are benefits to having them - less water draining across roadway, less erosive energy @ E.O.P., etc.

Submitted By Resident Engineer — 7-21-08 — Date

Comments:

I concur

☒ **Approval Recommended**
☐ **Rejection Recommended**

Becky Baltz — District Engineer — 7-29-08 — Date

Comments:

CONCEPTUAL APPROVAL SUBJECT TO FINAL DETAIL DESIGN

☑ **Approval**
☐ **Rejection**

David D. Cooper by BJB — State Construction and Materials Engineer — 8-18-08 — Date

Distribution: **Resident Engineer, Project Manager, District Operations Engineer, State Construction and Materials Engineer**
***Value Engineering Administrator - *MoDOT, P.O. Box 270, Jefferson City, MO 65102**

RT. 60 BARRY VE SUMMARY SHEET

Original Contract

Item Number	Item Description	Bid Quantity	Units	Unit Price	Total
60	CLASS 3 EXCAVATION	1248	CUYD	$4.75	$5,928.00
110	BP-3 64-22	838	TONS	$60.55	$50,740.90
120	SP125C 70-22	34480.6	SQYD	$6.20	$213,779.72
160	PIPE COLLAR, TYPE B	5	EA	$1,150.00	$5,750.00
320	ROCK LINING	91	CUYD	$80.00	$7,280.00
400	CURVED VANE GRTE AND FRAME(2 FT. X 2 FT)	32	EA	$360.00	$11,520.00
750	18 IN. PIPE CULVERT GROUP B	289	LF	$45.00	$13,005.00
790	12 IN. CLASS III REINFORCED CONCRETE PIP	995	LF	$27.00	$26,865.00
800	18 IN. CLASS III REINFORCED CONCRETE PIP	331	LF	$48.00	$15,888.00
850	PRECAST CONCRETE DROP INLET 2 FT X 2 FT	107	FT	$250.00	$26,750.00
870	18 IN. (450 MM) GROUP B FLARED END SEC	5	EA	$540.00	$2,700.00
890	18 IN. (450 MM) PRECAST CONC FLARED END	2	EA	$540.00	$1,080.00
1060	13 IN, ASPH CONC PAVE SP125C	28641	SQYD	$37.40	$1,071,173.40
			Total		$1,452,460.02

VE Proposal

Item Number	Item Description	Bid Quantity	Units	Unit Price	Total
60	CLASS 3 EXCAVATION	705	CUYD	$4.75	$3,348.75
110	BP-3 64-22	844	TONS	$60.55	$51,104.20
120	SP125C 70-22	34655.6	SQYD	$6.20	$214,864.72
160	PIPE COLLAR, TYPE B	3	EA	$1,150.00	$3,450.00
320	ROCK LINING	83.4	CUYD	$80.00	$6,672.00
400	CURVED VANE GRTE AND FRAME(2 FT. X 2 FT)	17	EA	$360.00	$6,120.00
750	18 IN. PIPE CULVERT GROUP B	180	LF	$45.00	$8,100.00
790	12 IN. CLASS III REINFORCED CONCRETE PIP	438	LF	$27.00	$11,826.00
800	18 IN. CLASS III REINFORCED CONCRETE PIP	169	LF	$48.00	$8,112.00
850	PRECAST CONCRETE DROP INLET 2 FT X 2 FT	62	FT	$250.00	$15,500.00
870	18 IN. (450 MM) GROUP B FLARED END SEC	3	EA	$540.00	$1,620.00
890	18 IN. (450 MM) PRECAST CONC FLARED END	0	EA	$540.00	$0.00
1060	13 IN, ASPH CONC PAVE SP125C	28,466	SQYD	$37.40	$1,064,628.40
xx1	MoDOT PURCHASE 'PRECAST CONCRETE DROP INLET 2 FT X 2 FT	45	FT	$145.00	$6,525.00
			Total		$1,401,871.07

Total Savings $50,588.95

MEMORANDUM

Missouri Department of Transportation
Construction & Materials
District 7

Dennis Bryant

TO: Dave Ahlvers
State Construction & Materials Engineer

FROM: Michael C. Middleton M.C.M.
District Construction & Materials Engineer

RECEIVED
JUL 31 2008
Construction & Materials - ECR

DATE: July 30, 2008

SUBJECT: Contract 071221-701
Job No. J7P0769 & J7O2146
Route 60, Barry County
Value Engineering Proposal

Attached you will find three copies of a Value Engineering Proposal from APAC-Missouri, Inc. on the above referenced project for your review and signature. I recommend approval of this Value Engineering Proposal.

Please return two copies to my attention, retaining the third copy for your records.

Thank you.

VALUE ENGINEERING CHECK SHEET

TYPE OF WORK

(Check one that applies)

- ☐ Bridge/Structure/Footings
- X Drainage Structures (RCP, RCB, CMP's, ect.)
- ☐ TCP/MOT
- ☐ Paving (PCCP, ect.)
- ☐ Grading/MSE Walls
- ☐ Signal/Lighting/ITS
- ☐ Misc. _____

SUMMARY OF PROPOSAL

(If needed, condense summary to a couple of lines)

___Modify pavement slope to reduce the number of drainage structures required.

SCANNING OF DOCUMENT

If the proposal is large, please mark or make note, which pages need to be scanned into the database. If there are special instructions, make note of them here.

_____No need to scan plan sheets.

COPY

NEOSHO PROJECT OFFICE COST SAVINGS INITIATIVE

#1 - Opportunity

Report to work at closest maintenance facility and commute to project from the Maintenance facility. This is for active projects.

1) Fuel consumption from maintenance facility to project is cost effective. The difference in distance should not just be a couple of miles shorter.

a) Distance from residence to project office		Est. Savings per week	
b) Distance from project office to middle of project		Show Calc below	
c) Distance from residence to maintenance facility			
d) Provide a map with anticipated route of travel (Y/N)	Y/N	(Get map using http://maproom.missouri.edu/ - approved MoDOT Link)	

#2 - Opportunity

Allowing more state equipment to be driven home at night.

1) Fuel consumption from residence to project is cost effective. The difference in distance should not just be a couple of miles shorter.

a) Distance from residence to project office	20.77	Est. Savings per week	$8.79
b) Distance from project office to middle of project	31.66 ✓	Show Calc below	
c) Distance from residence to middle of project	24.71	34.75 mi./15 mpg=2.32 gal x 3.79 = 8.79	
d) Provide a map with anticipated route of travel (Y/N)	y	(Get map using http://maproom.missouri.edu/ - approved MoDOT Link)	

Narrative: Please provide brief narrative explaining what time/ where you will be required to report to work. Any adjustments in weekly schedule will be reported to the RE via email.

I will be at the Monett job site at 7:30 a.m. and leave the Monett Maint. Building at 4:00 p.m.

The undersigned employee understands that the MoDOT vehicle will only be used for the purpose of conducting state business, and will not be used for any purpose that violates MoDOT policy. The employee further understands that this is a trial period being conducted in an effort to save MoDOT money, that this program may be stopped at any time if evidence suggests it is not working. The employee will be responsible for keeping a daily mileage log that tracks the usage.

Form Completed by	Mike Copley	**Date**	7/3/2008
Approved by	Steve Campbell	**Date**	7-3-08
Effective Date for Approval Expires		**Date**	9-3-08

The fuel savings on this one is negligible. Mileage to be verified by Mr Copley. The benefit of this savings initiative is I hr plus per day of increased inspection time. -S.C.

Verif. of mileage below 7-3-08

31.66 x 2 x 5 day/wk = 316.6 mi/wk

24.71 x 2 x 4 day/wk + 31.66 x 2 1 day = 261 mi/wk

Δ = 55.6 mi / 15 mpg x 3.79 gal = $14.04/wk or $56.79/mo.

OK S.C.

MAPQUEST

A: 1501 Malcolm Mosby Dr, Neosho, MO 64850-7798

START	1: Start out going WEST on MALCOLM MOSBY DR toward MO-59 N/US-71 BR N.	0.5 mi
NORTH 71	2: Turn RIGHT onto US-71 BR N/MO-59 N.	0.6 mi
	3: Turn RIGHT onto US-60/MO-59.	5.1 mi
	4: Turn RIGHT onto MO-86.	7.1 mi
	5: Turn LEFT onto MO-M.	3.0 mi
	6: Turn RIGHT onto US-60.	15.3 mi
	7: Turn RIGHT onto S KYLER ST.	0.0 mi
END	8: End at E Us Highway 60 & S Kyler St Monett, MO 65708	

Estimated Time: 38 minutes Estimated Distance: 31.66 miles

B: E Us Highway 60 & S Kyler St, Monett, MO 65708

Total Time: 38 minutes Total Distance: 31.66 miles

MAPQUEST.

A: 22203 Beech Rd, Granby, MO 64844-8080

START	**1:** Start out going WEST on BEECH RD toward PEPSIN RD.	0.2 mi
←	**2:** Turn LEFT onto MO-E.	2.0 mi
←	**3:** Turn LEFT onto MO-J.	9.4 mi
→	**4:** Turn RIGHT onto MO-37/MAIN ST. Continue to follow MO-37.	5.7 mi
→	**5:** Turn RIGHT onto MO-97/FORD ST. Continue to follow MO-97.	2.1 mi
←	**6:** Turn LEFT onto US-60.	5.3 mi
→	**7:** Turn RIGHT onto S KYLER ST.	0.0 mi
END	**8:** End at E Us Highway 60 & S Kyler St Monett, MO 65708	

Estimated Time: 34 minutes Estimated Distance: 24.71 miles

B: E Us Highway 60 & S Kyler St, Monett, MO 65708

Total Time: 34 minutes Total Distance: 24.71 miles

MAPQUEST.

A: 1501 Malcolm Mosby Dr, Neosho, MO 64850-7798

START	1: Start out going WEST on MALCOLM MOSBY DR toward MO-59 N/US-71 BR N.	0.5 mi
NORTH 71	2: Turn RIGHT onto US-71 BR N/MO-59 N.	0.6 mi
	3: Turn RIGHT onto US-60/MO-59. Continue to follow MO-59.	13.4 mi
	4: Turn RIGHT onto MO-J/W MARKET ST. Continue to follow MO-J.	4.1 mi
	5: Turn LEFT onto MO-E.	2.0 mi
	6: Turn RIGHT onto BEECH RD.	0.2 mi
END	7: End at 22203 Beech Rd Granby, MO 64844-8080	

Estimated Time: 30 minutes Estimated Distance: 20.77 miles

B: 22203 Beech Rd, Granby, MO 64844-8080

Total Time: 30 minutes Total Distance: 20.77 miles